

**“ASSOCIATION OF ELEVATED SERUM FERRITIN LEVELS  
IN MID-PREGNANCY AND THE RISK OF  
GESTATIONAL DIABETES MELLITUS”**

**ABSTRACT**

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**AIMS & OBJECTIVES :**

- (1) To determine the association between moderately elevated Serum Ferritin levels in mid-pregnancy and risk of Gestational Diabetes Mellitus .
- (2) To investigate the effect of a higher level of maternal serum Ferritin and thereafter describe a generic framework for combining this screening information with designing a prophylactic intervention in the future.

**METHODOLOGY:**

<b>STUDY CENTRE</b>	:	Department of Obstetrics and Gynecology, Madras Medical college, Chennai
<b>DURATION OF STUDY</b>	:	One year
<b>STUDY DESIGN</b>	:	Prospective study
<b>SAMPLE SIZE</b>	:	100

**INCLUSION CRITERIA:**

- Pregnant women in gestational age 16 to 24 weeks as calculated by LMP and dating scan

**EXCLUSION CRITERIA:**

Pregnant women with

- Anemia (Hb<11gm/dl),
- Pre-eclampsia,
- Type 1 and type 2 diabetes
- Hematological disorders ( sickle cell anemia, hemoglobinopathy, thalassemia)
- Auto immune disorders( SLE, rheumatoid arthritis)
- Hepatitis, Any fever
- Any local and systemic infection

**PROCEDURE:**

100 women attending the antenatal clinic (as selected by inclusion criteria and exclusion criteria )were enrolled in the study. Their haemoglobin levels at their visit from 16-24 weeks was analysed and those with above 11 gms were chosen for the study after obtaining valuable consent. The serum ferritin levels measured and grouped into four and then they were prospectively observed during their consecutive antenatal visits with OGCT and OGTT if

needed. And also FBS, PPBS was monitored for women with term gestation. The patients were followed up for risk of development of GDM.

## **RESULTS:**

Among the 100 pregnant women in this study, only 37 had GDM diagnosed at some point of time in the current pregnancy. In that 37 women, 22 were started on insulin and 15 were on medical nutrition therapy out of 37 who developed GDM, about 18 had ferritin values between 60-90 ng/ml, and 6 had values above 90 ng/ml. and in this 6 women women with serum ferritin >90, 5 were started on insulin. This implies that high serum ferritin levels has required the need of insulin for their blood sugar control. Among 18 who had serum ferritin level 60-90ng/ml, majority ( about 14) had the need of insulin and remaining 4 just needed MNT for their adequate blood sugar control. The p-value of this association is <0.001.

## **CONCLUSION:**

Serum ferritin levels , apart from iron store action, is a good predictor of developing GDM. Elevated serum ferritin concentrations, at early gestational weeks, is associated with increased risk of developing GDM. This association is mediated by fat mass of the mother and obesity , at least in part. This data in this study suggests a possible link., between high serum ferritin and low grade inflammation and insulin resistance in pregnancy., which creates the risk of developing GDM.

Though significant association was analysed in this study, between serum ferritin in higher levels and risk of developing GDM, still larger studies are required to prove this association in a significant large population.